iScan™ VP30

HIGH-DEFINITION VIDEO PROCESSOR & HUB

Powered by ABT

OWNER'S MANUAL

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On all complaints and concerns in the USA call Customer Support at **1-866-423-3836.**
For hook-up and operation of your unit or to locate an Authorized Service Company, please call or write:

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DVDO BY ANCHOR BAY TECHNOLOGIES, INC.
300 Orchard City Drive, MS 131
CAMPBELL, CALIFORNIA 95008
1-866-423-3836
http://www.DVDO.com

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Introduction

Thank you for purchasing the iScan VP30 Video Processor powered by ABT. This product delivers a level of quality among the very highest available today.

We are especially pleased to bring you ABT's new Precision Video Scaling II. This technology enables precision upconversion of standard and high definition (480i/p, 576i/p, 720p or 1080i) video sources and content to the native or optimum resolution of your display, delivering best-in-class front-of-screen performance. Available output resolutions span from VGA up to 1080p, including the standard HDTV resolutions of 720p and 1080i.

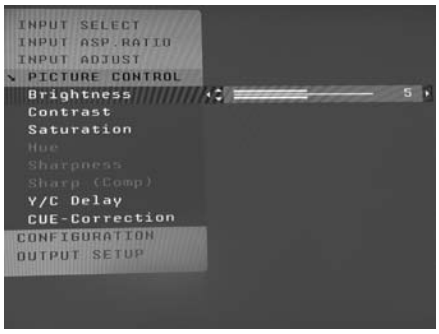
In addition to our own video scaling technology the iScan VP30 also offers a host of other innovative features, including:

- 4 HDMI (High Definition Multimedia Interface) inputs and 1 HDMI output
- Analog Input and Output, using BNC-style Connectors
- Flexible Digital and Analog Audio Switching
- Precision Audio/Video Time-Delay Synchronization
- Timebase Correction
- Fully Programmable Framerate Conversion
- Input and Output Aspect Ratio Controls
- Flexible Zoom and Pan Controls
- SDI Input Capability (with the DVDO SDI Input Module, P/N SDI-601A)

This Owner's Manual can help you set up your new iScan VP30, and give you the information required to match it to your display. It can also show you how to connect it to and use it with the other components in your system.

Document Conventions

In this Owner's Manual, the menu structure is referred to in the following abbreviated form:



Navigating the On Screen Display (Image A)

For example, to adjust the 'Brightness' press the 'Picture Control' button and then using the up/down arrow buttons, highlight 'Brightness' and press enter to adjust the setting.

If you were changing this value to 5, the abbreviated instructions would read as follows:

Picture Control ⇨ Brightness ⇨ 5

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Unpacking and Inspection

Your iScan VP30 carton should contain the following items:

- iScan VP30 Video Processor
- Universal 6V@5A AC-to-DC Power Converter
- US Power Cord (International Customers, consult your local authorized DVDO reseller)
- Remote Control
- iScan VP30 Product Guide
- iScan VP30 Quick Start Guide
- Serial Cable for Software Updates and Automation (1:1)

The iScan VP30 uses BNC-style analog connectors and an HDMI digital connector to provide video output signals. You must purchase an output cable to connect to one of these outputs to your display. Different displays have different input connectors, so check your display specifications to ensure compatibility.

Both input and output cables can be supplied by your Authorized DVDO Reseller. To find your nearest Authorized DVDO Reseller, go to **www.dvdo.com/res/index.html**. There are also a wide selection of cables and adapters available on our website at **www.dvdo.com/pro/pro_acc.html.**

Display Compatibility Requirements

DVDO iScan video processing products are compatible with a wide range of displays. These include digital TVs, projectors, and flat panel displays, as well as other emerging technologies that can support 480p or higher resolution video signals.

To determine if your display is compatible with the DVDO iScan VP30, look to see if it has one of the inputs listed below. If not, then your display is probably limited to receive a standard NTSC, PAL or SECAM interlaced signal and will not function correctly with iScan products.

Digital Inputs

HDMI input

DVI-D input

Analog Inputs

VGA HD-15 input

5 BNC RGBHV inputs

Component input (YPbPr or YCbCr)

OR

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Component video inputs that are not capable of accepting a 480p signal should be labeled '480i' (NTSC) or '576i' (PAL/SECAM).

The following types of displays should be compatible with an iScan video processor since a large majority of them can support higher resolution signals:

- Plasma displays
- LCD-based flat panel and front & rear projection displays
- DLP-based front & rear projection displays
- LCoS-based front & rear projection displays (D-ILA™ & SXRD™ included)
- CRT-based Direct View HDTVs and Computer Monitors with front and rear projection displays

Installation Guidelines

Take special care with the iScan VP30 installation to ensure optimal performance. Pay particular attention to the bulleted items that begin below and to other precautions that appear throughout this guide.

Do . . .

- Install the iScan VP30 on a solid, flat, level surface such as a table or shelf. You can also install the iScan VP30 in a standard 19" equipment rack using an optional rack-mount kit available from authorized DVDO resellers or directly from DVDO.
- Select a dry, well-ventilated location.
- Use only the included external power supply.
- Avoid excessive humidity, sudden temperature changes or temperature extremes.
- Use only accessories recommended by the manufacturer to avoid fire, shock or other hazards.
- Unplug your iScan VP before cleaning. Use a damp cloth for cleaning.

Don't . . .

- Install the iScan VP30 on an unstable surface or one that is unable to support all four of its feet, unless it is installed in an equipment rack.
- Stack the iScan VP30 directly above heat-producing equipment such as power amplifiers or other components that generate heat during use.
- Expose the iScan VP30 to a high temperatures, humidity, steam, smoke, dampness, or excessive dust. Avoid installing the iScan VP30 near radiators and other heat producing appliances.
- Install the iScan VP30 near unshielded TV or FM antennas, cable TV decoders, and other RF-emitting devices that might cause interference.
- Place the iScan VP30 on a thick rug or carpet or cover the iScan VP30 with cloth. This might prevent proper cooling.
- Attempt to service this unit. Instead, disconnect it and contact your Authorized DVDO Reseller or contact Anchor Bay Technologies directly.
- Open or remove unit panels or make any adjustments not described in this manual. Attempting to do so could expose you to dangerous electrical shock or other hazards. It may also cause damage to your iScan VP30.
- Obstruct the front panel IR receiver window shown in "Remote Control Overview". Do not attempt to use the remote control out of line of sight with the IR receiver. Doing so will cause improper operation.

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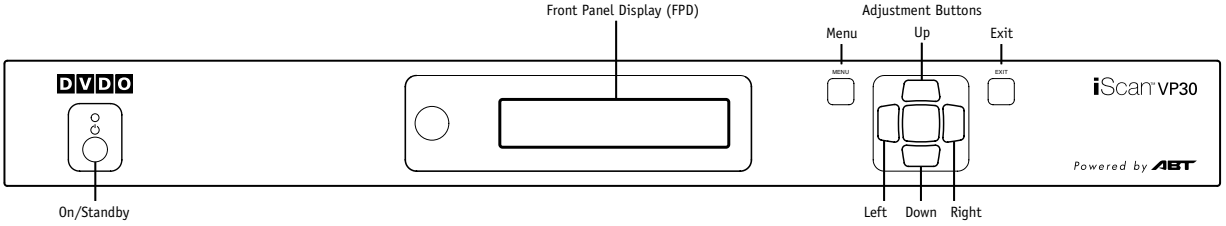
Front Panel Overview



Status LED – This displays the current state of the iScan VP30

Off = The unit is in standby mode

Red = No signal detected

Blue = The unit is processing the signal

Green = The unit detects an unsupported signal

On/Standby – This toggles unit power between On and Standby.

IR Window – This is where all IR commands are received by the iScan. Do not obstruct this window.

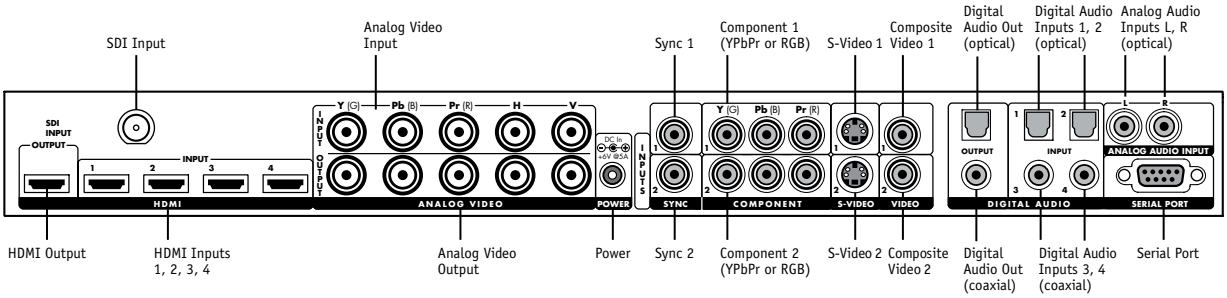
Front Panel Display (FPD) – This is where all information from the on screen display (OSD) is duplicated to assist in the setup of your iScan.

NOTE: When navigating the OSD, the FPD always shows the current selection on the bottom line and the menu/submenu item on the top line. When you change a value of a setting, the value is on the bottom line and the title of the parameter is on the top line.

Navigation Keys – These keys are duplicated on the remote control and function exactly the same.

NOTE: Switching Inputs using the Navigation keys – You can switch inputs on the front panel of the iScan VP30 using the navigation keys (v and ^). To do this, press the **Down** or **Up** without pressing the **Menu** button first.

Rear Panel Overview



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Video Inputs

The iScan VP30 has eleven (11) video inputs and an optional SD-SDI input available (P/N SDI-601A). The inputs and the formats they support are as follows:

- Video 1 (NTSC, PAL, PAL-M and SECAM)
- Video 2 (NTSC, PAL, PAL-M and SECAM)
- S-Video 1 (NTSC, PAL, PAL-M and SECAM)
- S-Video 2 (NTSC, PAL, PAL-M and SECAM)
- Component/RGBS 1 (480i/p, 576i/p, 720p@50Hz, 720p@60Hz, 1080i@50Hz, 1080i@60Hz)
- Component/RGBS 2 (480i/p, 576i/p, 720p@50Hz, 720p@60Hz, 1080i@50Hz, 1080i@60Hz)
- RGBHV/Component (480p, 576p, 720p@50Hz, 720p@60Hz, 1080i@50Hz, 1080i@60Hz, VGA/SVGA/XGA/SXGA@60Hz)
- HDMI 1 (480i/p, 576i/p, 720p@50Hz, 720p@60Hz, 1080i@50Hz, 1080i@60Hz, VGA/SVGA/XGA/SXGA@60Hz RGB/YCbCr 4:4:4/ YCbCr 4:2:2)
- HDMI 2 (480i/p, 576i/p, 720p@50Hz, 720p@60Hz, 1080i@50Hz, 1080i@60Hz, VGA/SVGA/XGA/SXGA@60Hz RGB/YCbCr 4:4:4/ YCbCr 4:2:2)
- HDMI 3 (480i/p, 576i/p, 720p@50Hz, 720p@60Hz, 1080i@50Hz, 1080i@60Hz, VGA/SVGA/XGA/SXGA@60Hz RGB/YCbCr 4:4:4/ YCbCr 4:2:2)
- HDMI 4 (480i/p, 576i/p, 720p@50Hz, 720p@60Hz, 1080i@50Hz, 1080i@60Hz, VGA/SVGA/XGA/SXGA@60Hz RGB/YCbCr 4:4:4/ YCbCr 4:2:2)
- SD-SDI (480i/576i – SMPTE 259M-Compliant)

NOTE: The iScan VP30 is able to process HDCP protected signals. However, the output signal may be only visible if a valid HDCP supported display is hooked up to the VP30's HDMI output connector. The output signal would never be visible through the VP30's analog BNC output connectors.

Video Outputs

The iScan VP30 has two video outputs, one analog and one digital. The analog output on the iScan VP30 can output the following signal types:

- YPbPr (Component)
- RGBHV
- RGsB
- RGBS

The digital output on the iScan VP30 can output either:

- RGB 4:4:4 (8-bit)
- YCbCr 4:2:2 (10-bit)
- YCbCr 4:4:4 (8-bit)

To connect the iScan VP30 to a display that has a DVI input, use either an HDMI-to-DVI cable or an adapter.

Audio Inputs

There are nine (9) audio inputs on the iScan VP30:

- Two (2) Optical Digital inputs
- Two (2) Coaxial Digital inputs
- One (1) Analog (L/R) input
- Four (4) HDMI inputs

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While the digital and analog audio inputs can be assigned to any one of the video inputs, the HDMI audio inputs are tied directly to the HDMI video signal connected on the same input.

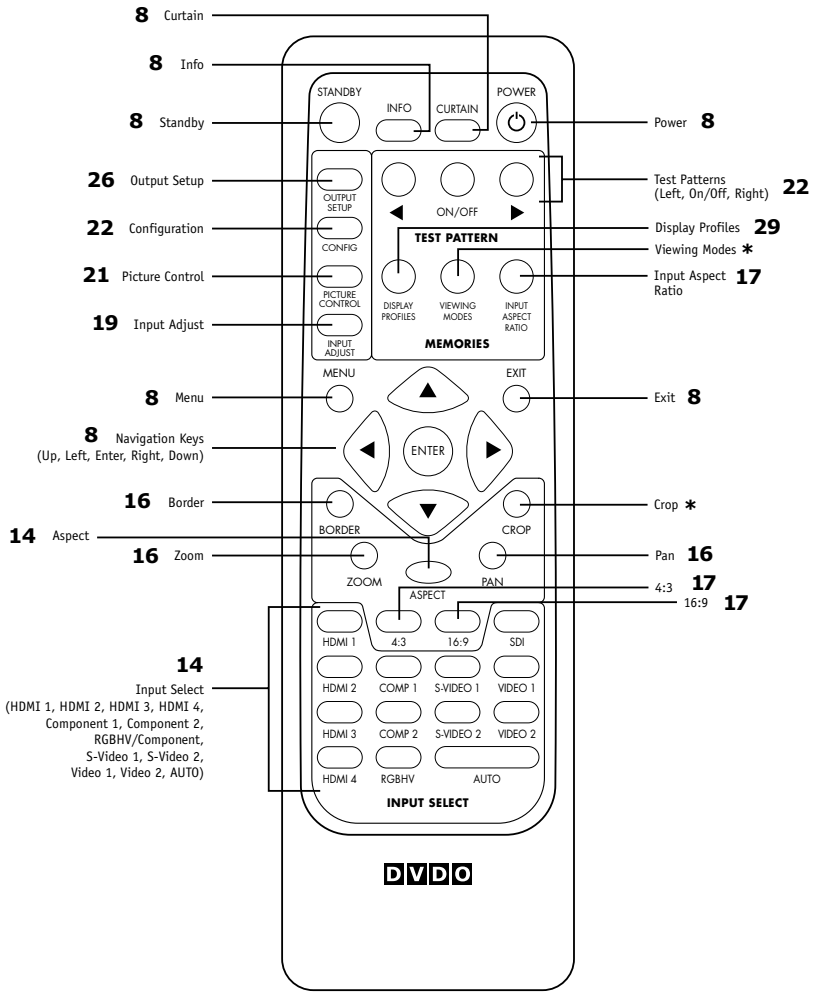
The iScan VP30 accepts digital audio sourced from DVD players, satellite receivers, digital set top boxes, game consoles, or other digital audio devices. These inputs are compatible with most consumer digital audio formats, including CD-Audio (44.1kHz/16 bit LPCM), Dolby Digital, and DTS. The coaxial digital audio inputs are compatible with any format with a sampling frequency between 24kHz and 192kHz, and with a data word structure up to 24 bits in length. The optical digital audio inputs are compatible with any format with a sampling frequency between 24kHz and 96kHz and with a data word structure up to 24 bits in length. The HDMI audio inputs are compatible with HDMI 1.1 audio formats.

Audio Outputs

There are two digital audio outputs, one coaxial and one optical. Both are active at the same time, with the selected input Digital Audio stream.

Remote Control Overview

For additional information about the functions of these buttons, turn to the pages given in parentheses ( ). An asterisk (*) indicates this feature will be implemented in future software.



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Power/Standby Buttons

The iScan VP30 remote has a Power and a Standby button. The Power button always turns the iScan VP30 on and the Standby button always put the unit into Standby mode.

Curtain Button

The iScan VP30 remote has a Curtain button which allows you to close a 'curtain' over the image. This feature is especially useful when an image is paused on a display susceptible to burn-in.

Remote Control Battery Installation

The remote control for the iScan VP30 requires two AAA batteries. These should be replaced as needed. ABT recommends Alkaline batteries because they last longer without leaking.

To install the remote control batteries:

1. Locate the battery compartment on the back of the remote control.
2. Remove the cover from the back. To do this, press the tab attached to the cover and pull the cover with the guide on the back of the remote control.
3. Remove the old batteries (if applicable).
4. Insert two new AAA batteries in the compartment as shown on the inside of the battery compartment. Make sure the batteries are correctly inserted, observing the proper polarity.
5. After installation, replace the cover and dispose of the old batteries (if applicable).

Menu Navigation

You can control the iScan VP30 as follows:

- From the front panel controls
- From the iScan VP30 remote control
- From a programmed universal remote control
- Using the serial connection on the back panel

The menu navigation controls on the remote control are duplicated on the front panel of the iScan VP30.

To navigate the menu:

1. Press the **Menu** button.
2. Use the directional buttons to highlight the parameter you want to change.
3. Press the **Enter** button to select the parameter and the **Left** and **Right** arrow buttons to change the chosen parameter.
4. Press the **Exit** button to exit out of the menu/OSD.

Info Screen

Press the **Info** button to display a window that shows information about the system including:

Input Status

Video Source

Signal Type

Audio Source

Aspect Ratio (Frame/Active)

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Output Status

- Resolution
- Frame Rate
- Line Rate
- Aspect Ratio (Display/Screen)

This screen can be helpful during troubleshooting.

Power Supply Input

The iScan VP30 comes with a 6V@5A AC-to-DC converter power supply, which accepts 100-240 VAC at 50/60Hz.

To attach power to the unit:

1. Attach the removable power cord to the external power supply.
2. Plug the removable power cord into a wall outlet or power conditioner, if applicable.
3. Plug the small connector attached to the cable that comes out of the power supply into the 'DC In' port on the back of the iScan VP30. The iScan VP30 should power on and display 'DVDO iScan VP30 Powered by ABT' on the FPD for a couple of seconds.

   IMPORTANT: Use only the power supply that came with your iScan VP30, or a replacement procured directly from ABT.

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Initial Set-Up

Once you have installed the iScan VP30 into your system, you must properly configure it for the display device being driven. The iScan VP30 is shipped from the factory with the following preset default settings:

- Input Select is set to AUTO, to automatically detect an active input in a pre-configured priority.
- The Digital Video output is selected with RGB 4:4:4 color space
- The output format is set to ATSC (DTV) 480p

Use either the remote control or the front panel controls to perform the initial setup of the iScan's output. The procedure below uses the front panel buttons to perform initial setup.

Accessing the iScan VP30's OSD is crucial, not only in allowing you to navigate the menu of the iScan VP30, but also to let you know that the iScan is sending a compatible signal to the display. If the OSD is not visible on the display's screen when you press one of the sub-menu buttons on the remote control, then you must configure the iScan with the Output Setup menu to output a signal that the display can accept.

Use these steps to allow you to see the OSD.

STEP 1 - Power Up

1. Attach the removable power cord to the external power supply.
2. Plug the removable power cord into a wall outlet or power conditioner, if applicable.
3. Plug the small connector attached to the cable that comes out of the power supply into the iScan VP30.

   The iScan VP30 should power on and display 'DVDO iScan VP30 Powered by ABT' on the FPD.

STEP 2 - Connect the iScan VP30 to your system

Displays with a DVI or HDMI Input

The default output on the iScan VP30 is digital RGB 4:4:4 (DVI Standard). If you have changed this setting, follow these instructions to change the settings back.

1. Press the **Menu** button on the front panel of the iScan VP30 once. You should see ' Main Menu /Input Select' on the FPD.
2. Press the **Up** button once. You should see 'Main Menu / Output Setup' on the FPD.
3. Press the **Enter** button. You should see 'Output Setup / Analog/Digital' on the FPD.
4. Press the **Enter** button. You should see 'Analog/Digital / BNC (Analog)'.
5. Press the **Down** button to select 'HDMI (Digital)' and press the **Enter** button. You should see the iScan VP30's On Screen Display (OSD) on your screen.

Displays with a Component (YPbPr) Input

1. Press the **Menu** button on the front panel of the iScan VP30 once. You should see 'Main Menu / Input Select' on the FPD.
2. Press the **Up** button once. You should see 'Main Menu / Output Setup' on the FPD.
3. Press the **Enter** button. You should see 'Output Setup / Analog/Digital' on the FPD.
4. Press the **Enter** button. You should see 'Analog/Digital / BNC (Analog)'. If you don't, press the **Up** button once and the press **Enter**. You should see 'Output Setup / Analog/ Digital' on the FPD.

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5. Press the **Down** button four times. You should see 'Output Setup / Color Space' on the FPD.
6. Press the **Enter** button once. You should see 'Color Space / YPbPr' on the FPD. If you don't, press the **Up** button once and press **Enter**. You should see the iScan VP30's On Screen Display (OSD) on your screen.

NOTE: The iScan VP30 cannot output a component signal if the input signal is from a DVI or HDMI source with HDCP. Instead the iScan VP30 outputs a blue screen.

Displays with a VGA HD-15 or 5BNC RGBHV input

1. Press the **Menu** button on the front panel of the iScan VP30 once. You should see 'Main Menu / Input Select' on the FPD.
2. Press the **Up** button once. You should see 'Main Menu / Output Setup' on the FPD.
3. Press the **Enter** button. You should see 'Output Setup / Analog/Digital' on the FPD.
4. Press the **Enter** button. You should see 'Analog/Digital / BNC (Analog)'. If you don't, press the Up button once and then press **Enter.** You should see 'Output Setup / Analog/Digital' on the FPD.
5. Press the **Down** button four times. You should see 'Output Setup / Color Space' on the FPD.
6. Press the **Enter** button once. You should see 'Color Space / RGB' on the FPD. If you don't, press the **Up** button once and press **Enter**. You should see the iScan VP30's On Screen Display (OSD) on your screen.

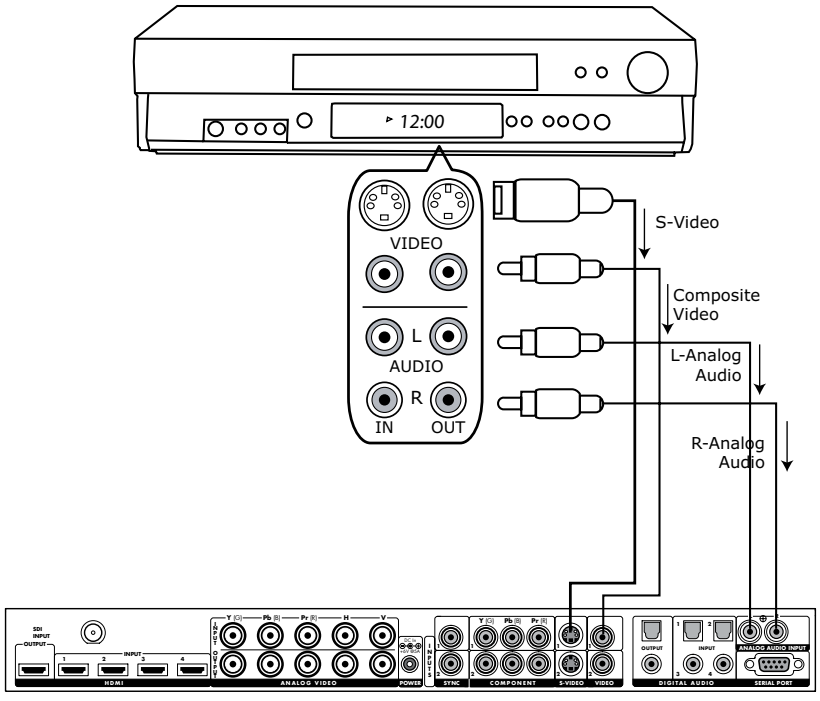
NOTE: The iScan VP30 cannot output an RGBHV signal if the input signal is from a DVI or HDMI source with HDCP. Instead the iScan VP30 outputs a blue screen.

STEP 3 - Connecting Your Sources to the iScan VP30

Up to 12 video sources can connected to the iScan VP30. Use the following suggestions for connections to several popular video sources.

VCR/LD Player/DVR

VCR/LD Player/DVR



Back of iScan VP30

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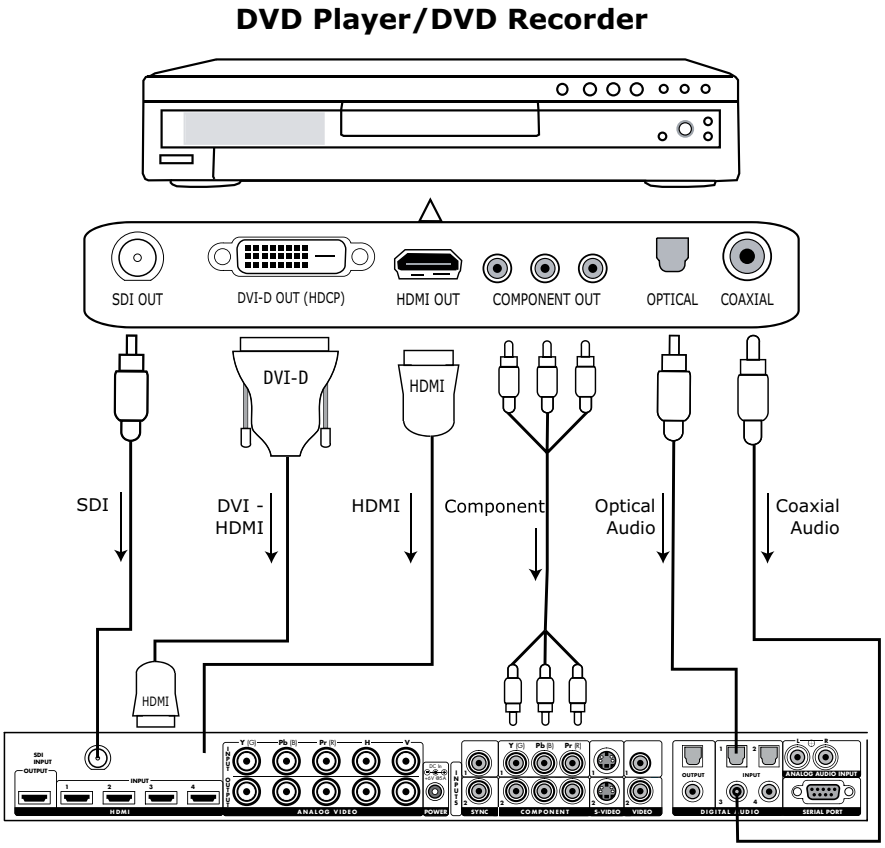
NOTE: Some VCRs and LD players have S-Video outputs. These give an improved picture from these sources. If your LD player or DVR has a digital audio output, ABT recommends you use that connection.

DVD Player/DVD Recorder



NOTE: If you have a display with an HDMI/DVI input, ABT recommends you use the DVI/HDMI output of your DVD player with the player's output resolution set to the lowest output resolution (preferably 480i). If you have a display with only component or RGBHV inputs, use either an SDI or component video connection. SDI outputs typically need to be added to your DVD player. This gives the additional benefit of skipping an extra digital-to-analog (D-to-A) and analog-to-digital (A-to-D) step for a picture with even more detail then a component connection. With a component connection, set the player's output to 480i, minimizing the amount of processing done in the player.

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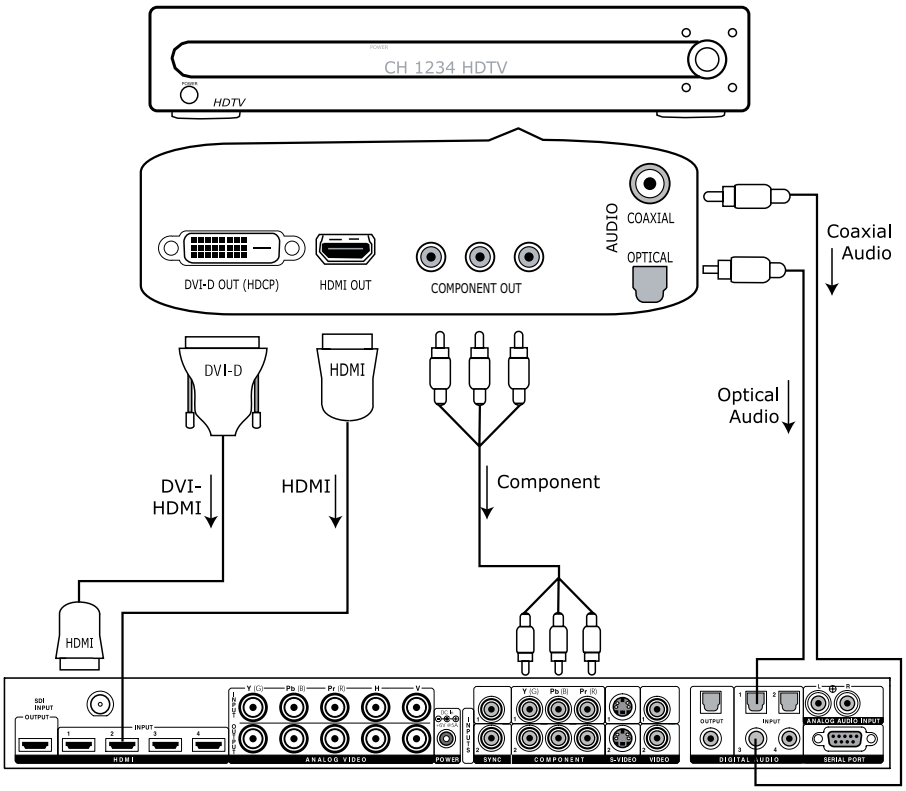
High-Definition Set Top Box or DVR/D-VHS



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NOTE: Some set top boxes require you to switch the output resolution. This means that if you are watching an HD channel you must manually switch the output resolution to 720p/1080i, or if you are watching an SD channel, you must manually switch the output resolution to 480i or 480p, 480i preferably. If your display only has component or RGBHV inputs, use the component output from your HD source. Do this because the digital connection may have HDCP, which requires that the analog outputs from the iScan are deactivated.

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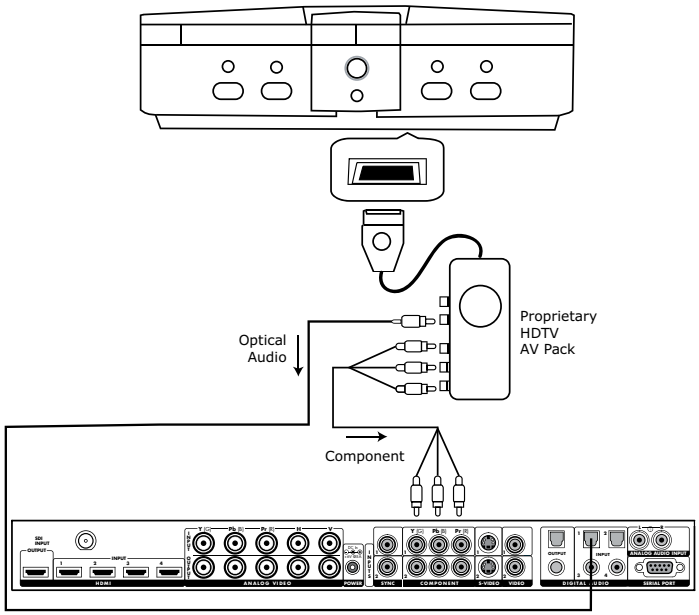
Game Console

Game Console



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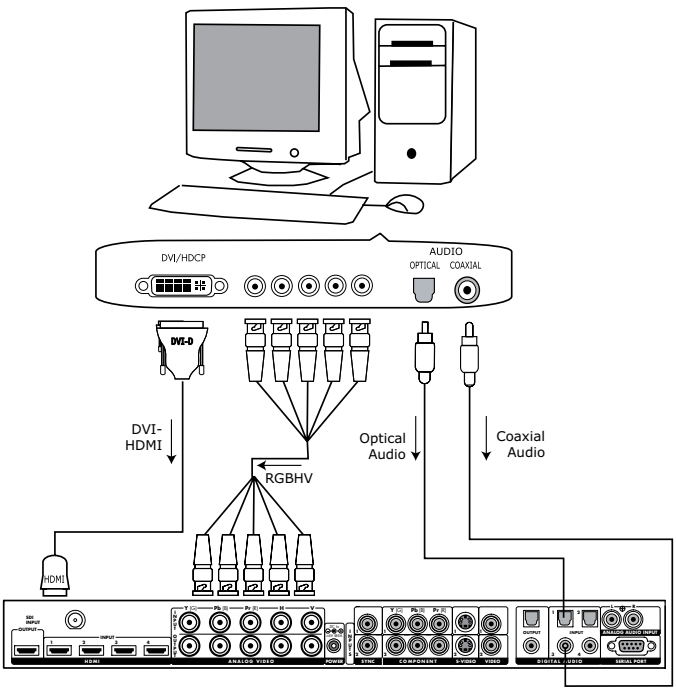
NOTE: Set the game console to output all resolutions (480p, 720p, 1080i)

PC

PC



Back of iScan VP30

NOTE: Only VGA (640x480), SVGA (800x600), XGA (1024x768), and SXGA (1280x1024) resolutions are supported at 60Hz.

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Audio Operation

The iScan VP30 features an audio delay function to exactly match the video delay incurred by the video processing. The iScan VP30 accepts four discrete digital audio inputs, two coaxial (Audio 1, 2) and two optical (Audio 3 and 4) inputs, one analog audio input and four HDMI audio inputs. The locations of the audio inputs are shown on the back panel diagrams earlier in this product guide.

The factory default audio assignment is as follows:

Audio 1 (optical): Component 1
Audio 2 (optical): S-Video 1
Audio 3 (coaxial): S-Video 2
Audio 4 (coaxial): Component 2
Stereo (analog): Video 1

NOTE: The HDMI audio inputs can only be assigned to the same HDMI video input although any of the other audio inputs can be assigned to any of the HDMI video inputs.You can assign a Digital Audio input to each Video input in the following manner:

You can assign an audio input to each Video input in the following manner:

1. Select a video input on the remote control.
2. Select Audio 1, 2, 3, 4, Stereo, HDMI or Off from the 'Input Adjust/Audio Input' menu.

NOTE: If an analog video input is selected, the HDMI option will not be available.

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Input Select

There are twelve available inputs on the iScan VP30:

- VIDEO 1 — Video 1 (Composite)
- VIDEO 2 — Video 2 (Composite)
- S-VIDEO 1 — S-Video 1
- S-VIDEO 2 — S-Video 2
- COMPONENT 1 — Component/RGBs 1
- COMPONENT 2 — Component/RGBs 2
- RGBHV — RGBHV/Component
- HDMI 1 — HDMI 1
- HDMI 2 — HDMI 2
- HDMI 3 — HDMI 3
- HDMI 4 — HDMI 4
- AUTO — Automatic active input detection and selection
- SDI — SD-SDI (SDI Video Input Module required)

These inputs can be accessed in five different ways:

- Using the front panel using the Left and Right buttons
- Using the remote control with the direct access buttons
- Using a universal remote programmed with the discrete codes
- Using the OSD from the front panel or from the remote to access the Input Select menu
- Using RS232 Serial Automation Protocol described in the appendix.

Input Aspect Ratio Control

The Input Aspect Ratio control selects the aspect ratio for the current input signal. The iScan VP30 automatically converts from the selected input aspect ratio to the selected output aspect ratio.

Push the **Aspect** button once to show the current input aspect ratio control function. To cycle through the available functions, push the **Aspect** button repeatedly.

For the Input AR function, push the **Up** or **Down** button once to show the current setting. Push either of these buttons again to cycle through the available aspect ratios. Push the **Exit** button to exit the menu and go back to the Input Aspect Ratio selection.

For the Zoom, Pan and Borders functions, push the **Up** or **Down** button to select the two control settings available: horizontal and vertical. Push the **Enter** button to adjust each setting.

- Push Up and Down to increase or decrease the setting.
- Push Exit again to exit this mode.

NOTE: The Zoom and Pan functions are applied to the input signal, not the output. This is an important consideration, especially for the Pan function. For example: If you do not zoom a full frame image more than 100%, there is nothing to pan. However, if part of the image is not on the screen, then the Pan function will work.

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The VP30's menu is exit automatically after 30 seconds of no user interaction.

Video input signals are usually classified in the following two ways:

- Frame Aspect Ratio
- Active Input Aspect Ratio

Frame Aspect Ratio

Frame Aspect Ratio (FAR) consists of two possible ratios: 4:3 or 16:9. DVD discs encoded in a 16:9 frame are sometimes referred to as anamorphic or enhanced for widescreen TV's. For example, a non-anamorphic widescreen DVD has a FAR of 4:3.

Active Aspect Ratio

Active Aspect Ratio (AAR) is the aspect ratio of the image or content (movie). This content is typically stated on the back cover of DVD discs. Some common active aspect ratios are as follows:

1.33:1 (4:3)
1.55:1
1.66:1
1.78:1 (16:9)
1.85:1
2.35:1

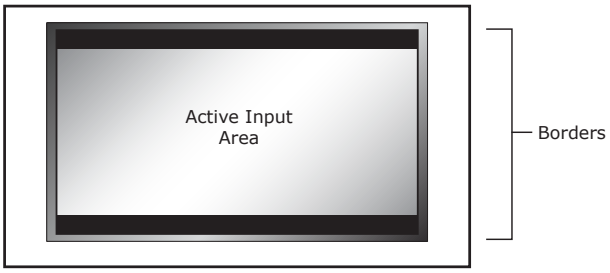
To use aspect ratio's in addition to these, the iScan VP30 provides the option to choose a custom aspect ratio called User with a range of 1.01:1-3.00:1.

iScan Image Mapping

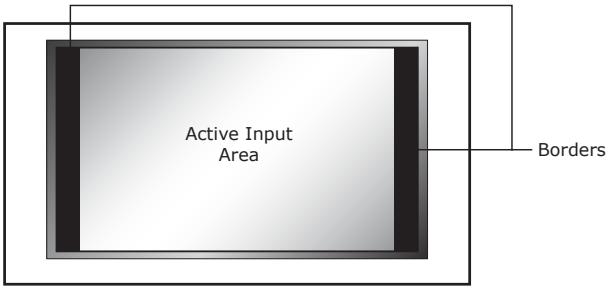
The situation when the Frame Aspect Ratio (FAR) is the same as the Active Aspect Ratio (AAR) is sometimes called Full Frame. This situation is illustrated below.

The iScan VP30 maps the AAR to the Output Aspect Ratio (OAR) in the following three ways:.

- When the AAR is greater than OAR, the iScan VP30 puts up Borders at the top and bottom as shown below:



- When the AAR is less than the OAR, the iScan VP30 puts up Borders on the left and right as shown below:



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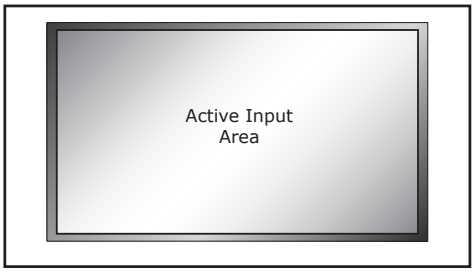
- When the AAR is equal to the OAR (Output Aspect Ratio), the iScan VP30 supplies no border as shown below:



Zoom

The Zoom function zooms in on or magnifies the image on your display. The minimum zoom is 100%, (no zooming); the maximum zoom is 150% (zoom magnification factor of 1.5X).

Horizontal Zoom Control: Push the **Enter** button to show the current Zoom setting. Push the **Up** and **Down** button to increase or decrease the zooming factor.

Vertical Zoom Control: Push the **Enter** button to show the current Zoom setting. Push the **Up** and **Down** button to increase or decrease the zooming factor.

Pan

The Pan function allows the image to be shifted up, down, left and right. Note that the Pan function can only be used after the image has been zoomed to any value greater than 100%.

Horizontal Pan Control: Push the **Enter** button to show the current Pan setting. Push the **Up** button to pan to the right. Push the **Down** button to pan to the left.

Vertical Pan Control: Push the **Enter** button to show the current Pan setting. Push the **Up** button to pan up. Push the **Down** button to pan the image down.

Borders

The Borders function allows you to add horizontal and/or vertical borders around the image. These borders obscure part of the input image. Certain input-to-output aspect ratios already result in left/right or top/bottom border being added. This control allows the system-generated borders to be extended, or for borders to be added when none exist. As the borders are adjusted (see below) the iScan temporarily increases the gray level of the borders so that they are visible during the adjustment process. The level will return to normal after the adjustment has ceased.

Horizontal Border Control: Push the **Up** button to move the left and right borders towards the middle of the image, increasing the border width and cutting off the sides of the input image. Push the **Down** button to move the left and right borders away from the image and decreases their width. If there are system-generated left/right borders already present (for example, when the input aspect ratio is 4:3 and the output aspect ratio is 16:9), the border width cannot be decreased beyond the base width created by the aspect ratio conversion.

Vertical Border Control: Push the **Up** button to move the top and bottom borders towards the middle of the image, increasing the border height and cutting off the sides of the input image. Push the **Down** button to move the top and bottom borders away from the image and decrease their height. If there are system-generated top/bottom borders already present (for example, when the input aspect ratio is 16:9 and the output aspect ratio is 4:3), the border height cannot be decreased beyond the base height created by the aspect ratio conversion.

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Borders are automatically added by the system when the Active Input Aspect Ratio is not the same as the Output Aspect Ratio as explained earlier in this guide. However you can add more borders using the Borders menu.

Presets

You can specify the Input Aspect Ratio by using the Presets or Manually.

Using Presets

You can use Presets with either the OSD or the Remote Control **Input Aspect Ratio** button. Refer to the Preset sub-menu in the Input AR menu for doing this with the OSD. The remote control operation is described below.

- **4:3** Selects 4:3 Full Frame without OSD.
- **16:9** Selects 16:9 Full Frame without OSD.

Pushing the Input Aspect Ratio button repeatedly selects Preset 1 through Preset 4 and User in sequence without using the On-Screen Display (OSD).

The four user-defined preset value selections (Preset 1 - 4) are stored in non-volatile memory and always available.

Each of these presets consists of the following:

- Frame Aspect Ratio
- Active Input Aspect Ratio
- Zoom parameter
- Pan parameter
- Borders

The User preset selection is also stored in non-volatile memory. However the User selection is always updated after you modify any pre-defined aspect ratio setting. In order to permanently keep a custom aspect ratio setting, you must save it to one of the four preset selections.

Setting the Input Aspect Ratio Manually

You can set the following parameters manually:

- Frame Aspect Ratio
- Active Input Aspect Ratio
- Zoom factor
- Pan parameter
- Borders (horizontal and vertical)

NOTE: Typically you only need to select the Frame Aspect Ratio and Active Input Aspect Ratio to get an acceptable picture.

The Active Input Aspect Ratio menu item lists the most common movie aspect ratios (1.33:1, 1.85:1 and 2.35:1). You can also customize the Input Aspect Ratio using the **Up** and **Down** buttons.

Save User-defined presets as follows:

- Customize the aspect ratio manually (refer to Setting the Input Aspect Ratio Manually above).
- Select one of the presets from the 'Save User To' menu. Confirm the action by selecting Yes.

NOTE: Be careful, because saving to a preset deletes the previous preset.

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If you have not customized the aspect ratio, and the current aspect ratio settings are the same as a system defined preset. In this case, the system will not allow you to save the preset setting.

Front Panel and On-Screen Displays for IAR

The On-Screen Display (OSD) and the Front Panel Display (FPD) allow you to set the Input Aspect Ratio.

Input Adjust Control

Push the Input Adjust button once to show the current input adjustment function. You can cycle through the available functions by pushing this button repeatedly.

The available 'input adjust' functions are as follows:

- Overscan
- Line Offset
- Color Space
- Input Level
- VCR mode
- Film mode
- HDCP Mode
- Auto Priority
- Audio Input
- AV Lip Sync

Overscan

The Overscan function scales the input image proportionally in both vertical and horizontal dimensions by the user-specified overscan factor. The purpose of Overscan is to remove unwanted image portions around the perimeter of the image. The default overscan value is 0, which means 100% of the input image is shown. The maximum overscan value is 20 which means the input image is scaled up by 120%.

To adjust the overscan level:

1. Push the **Up** or **Down** button. The current level is shown.
2. Push the **Up** or **Down** button to decrease or increase the amount of overscan. The Overscan value is applied to all input aspect ratios and is independent of the Zoom value.

Line Offset

The image can be adjusted vertically when an SDI or HDMI (480i/576i) input when you use the Line Offset function. This function can be set independently for both 480i and 576i input formats.

Color Space

The color space setting allows the user to specify what the input signal is on the RGBHV/Component and HDMI inputs. The **YPbPr** setting only applies to the RGBHV/Component input. The **YCbCr 4:2:2** and **YCbCr 4:4:4** and Auto settings only apply to the HDMI inputs. The options are:

- RGB
- YPbPr
- YCbCr 4:2:2 color space
- YCbCr 4:4:4 color space
- Auto

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Input Level

The input level setting allows the user to specify the levels of the input signal, either Video (16-235) or PC (0-255)

- Video
- PC

VCR Mode

VCR Mode decouples the output timing completely from the input timing to ensure a stable output from the iScan VP30 for VCR playback especially during trick-play modes (play forward, play reverse, still/pause).

- **On** – Output timing is decoupled from the input timing regardless of Frame Rate settings.
- **Off** – Output timing is dependent on Frame Rate settings.
- **Auto** - Turns on VCR Mode if a VCR source is detected.

Film Mode

Film Mode allows you to control the film mode operation of the iScan VP30. Usually the automatic film mode detection is preferred. However there are some cases where the detection needs to be turned off, or biased towards film.

- **Off** – Turns off film detection in the deinterlacer. All video sources are treated as original video
- **Film Bias** – The Film Bias mode may improve film mode detection in some cases. For example, it may improve the detection of PAL/SECAM film sources.
- **Auto** - Source adaptive deinterlacing is on. This is the preferred setting as it sets the deinterlacer to optimally process a variety of signal types and quality.

HDCP Mode

There are two HDCP modes:

- **Off:** HDCP is disabled at the iScan VP30's HDMI input. Some sources turn off HDCP in this case and the iScan VP30 drives a non-HDCP DVI display or an analog display.
- **On:** The iScan VP30 continuously looks for a HDCP source on its HDMI input.

Auto Input Priority Selection

The Auto Input Priority Selection function assigns different priorities to the video input's automatic active video selection mode (AUTO in Input Select menu). First select the video input, then change the priority of that input.

1 - Press the **Down** button. The first video input VIDEO 1 is shown.

2 - Press the **Enter** button to view the current priority of the selected input.

3 - Press the **Up** or **Down** button to change the priority of the selected input.

4 - Press the **Exit** button again to complete the priority assignment.

5 - Repeat Steps 1 through 4 to select the next video input and adjust the priority setting.

Audio Input

The Audio Input function assigns an audio input to the currently selected video input. Four digital audio inputs and a single analog audio input are available.

To assign the audio input to another video input, push the **Down** button. The front panel display (FPD) shows the current setting. For more info about how to assign an audio input to a video input, refer to **Audio Input Operation**.

AV Lip Sync

The iScan VP30 automatically delays the input audio to match the video processing delay. You can choose to increase or decrease the audio delay by changing this setting. Push the **Up** or **Down**

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button to display the current additional bias delay setting (default 0). Use the **Up** or **Down** button to increase or decrease the delay in milliseconds.

> **NOTE:** The total audio delay cannot be less than zero, that is, the iScan cannot have negative audio delay. If you choose to decrease the automatic delay setting by a certain amount, this value could be changed by the iScan in situations where the iScan's calculated delay plus the specified additional delay results in a value less than zero.

Picture Controls

Brightness

This control adjusts the brightness (black level) of the overall image output from the iScan VP30. If you turn it up too high, it may make black look gray. In general, you should adjust this up until you see the black areas of your display turn gray and then back it down just below that point. Default setting is 0 (midrange).

Contrast

Contrast adjusts the ratio between white and black signal levels and is effective as a gain control. The difference between this and the Brightness control is that this adjusts the difference between the brightest and darkest part of the image. Note that all displays have a maximum white level. Going beyond this level only "clips" the upper gray levels and you will lose color resolution at the brighter levels. Adjust this control up until you see the brighter levels of the image begin to wash out. At this point, back it down just below that point. The default setting is 0 (midrange).

Saturation

The iScan VP30 allows you to control the saturation of the image independent of the display. Saturation is the same as the "Color" control on most TVs and controls the richness of the color in the image. The default setting is 0 (midrange).

Hue

As with Saturation, hue can also be controlled independent of the display. Hue is the same as the "Tint" control found on most TVs and controls how colors are displayed in the image. The Hue control is not available for Component or PAL/SECAM inputs. The default setting is 0 (midrange).

Sharpness

The Sharpness setting adjusts the sharpness of the selected input signal. The default setting is 0.

Y/C Delay

Sometimes there is a lag between the Luminance (Y) and the Chrominance (Pb/Pr or Cb/Cr) of the video signal. This causes a color "smearing" because the color component of the image is not lining up properly to the black and white luminance component of the image. The iScan VP30 can compensate for these errors in the source signal by shifting the phase of the Y with respect to the C, forward or backward to align them properly.

Use the **Down** and **Up** buttons to adjust the phase and observe the effects on your display to obtain the optimal setting. The default is 0.

Chroma Filter (Auto CUE-C)

This feature removes chroma upsampling errors (CUE) found in video sources which have been MPEG encoded and then improperly decoded.

- Off - No chroma filtering. Use this setting if the source does not have a CUE problem.
- On - Chroma filtering is always on. Use this setting if the source is known to have a CUE problem.

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- Auto - Automatic chroma error detection and correction. Use this setting when you don't know if a source has a CUE problem. Also use this setting for all digital sources which use MPEG2 decoders (DVD players, digital satellite receivers, and so on.) as it will also detect and correct chroma errors created by all sources of this type when the source is encoded as interlaced (also sometimes called Interlaced Chroma Problem, or ICP).

Configuration

Test Patterns

The iScan VP30 has 27 internal test patterns to assist in the setup of your individual sources and your display. To learn more about how to use the internal test patterns, refer to the section **Setting up an iScan VP30 Using the Internal Test Patterns and Avia: Guide to Home Theater Calibration DVD.** To turn the test patterns on and off, use the **Test Pattern On/Off** button.

To navigate backwards and forwards through the available test patterns use the **<** and **>** buttons, respectively.

Auto Standby

The default setting is 'Off', which means iScan VP30 is always in Active mode, regardless of the activity state of the selected input. If Auto Standby is 'On', the iScan VP30 goes into Standby mode 30 seconds after the selected input becomes inactive. To see the current setting, press **Up** or **Down**. Then press the same button again to change the setting.

LED Brightness

This selection allows the user to configure the behavior of the Front Panel LED brightness. The 'Active' parameter adjusts the brightness of the Front Panel LED when the menu is being navigated. The 'Reduced' parameter adjusts the brightness of the Front Panel LED during normal usage, when the menu is not being navigated.

User Mode

You have limited access to the output timing controls in 'Normal' mode. In 'Advanced' user mode, you have access to the complete set of output timing controls. Push the Down button to see the current setting and the FPD displays either 'Normal' or 'Advanced' user level. Push the **Down** button again to select the alternate mode.

Serial Port Rate

The serial port is used by the automation system controllers to control the iScan VP30. The serial port baud rate defaults to 19200 bps, but can be changed using the **Up** or **Down** button.

The supported baud rates are:

- 1200 bps (1.2K)
- 2400 bps (2.4K)
- 4800 bps (4.8K)
- 9600 bps (9.6K)
- 14400 bps (14.4K)
- 19200 bps (19.2K)
- 38400 bps (38.4K)
- 57600 bps (57.6K)

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Factory Default

The Factory Default option allows you to reset system settings to the factory default.

1- Press either the **Up** or **Down** button. The FPD displays 'No'.

2- Press the same button to switch to 'Yes'.

3- Confirm this selection by pressing the **Enter** button.

The default factory settings are as follows:

- Input Selection : Auto
- Input Aspect Ratio : 16:9
- Picture Controls : midrange (0)
- Chroma Filter (CUEC) : Off
- Output Aspect Ratio : 16:9
- Output Resolution : 480P
- Sync : Sync on Y
- Output Color Space : RGB 4:4:4
- Output Type : Digital
- Auto Standby : Off
- Frame Rate : 60Hz input - 1:1 source-locked output
- 50Hz input - unlocked at 59.94 Hz
- User Mode : Normal
- Video Input Priority Settings :
  - 1– Component 1
  - 2– Component 2
  - 3– S-Video 1
  - 4– S-Video 2
  - 5– Video 1
  - 6– Video 2
  - 7- HDMI 1
  - 8- HDMI 2
  - 9- HDMI 3
  - 10- HDMI 4
  - 11- SDI
  - 12- RGBHV/Component
- Digital Audio Input Assignment
- Component 1 - Audio 1
- Component 2 - Audio 4
- S-Video 1 - Audio 2
- S-Video 2 - Audio 3
- Video 1 - Analog
- Video 2 – Off
- HDMI 1 – HDMI 1
- HDMI 2 – HDMI 2
- HDMI 3 – HDMI 3
- HDMI 4 – HDMI 4
- SDI – Off
- RGBHV/Component - Off

Software Update

Use this parameter to install the latest software into your iScan VP30. The latest software is available at **www.dvdo.com/update**. The website includes complete download install instructions.

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Information

This setting shows information about the system including:

Input Status

- Video Source
- Signal Type
- Audio Source
- Aspect Ratio (Frame/Active)

Output Status

- Resolution
- Frame Rate
- Line Rate
- Aspect Ratio (Display/Screen)

This screen is helpful during troubleshooting.

Analog/Digital (A/D)

Push the Down button to show the current output type. Push the Down button again to select the next item on the list shown below. You can also use the Up button to cycle through the output types.

- Analog Output (BNC-style connectors)
- Digital Output (HDMI connector)

Output Format

Push the Down to show the current output format. Push the Down button again to show the next item on the list shown in Table 5. You cannot select the format until you press the Exit button. Press the Enter button again to select the output timing controls, explained in the Output Timing section.

Table 1. Preset Formats and Characteristics for Analog Video Output

Horizontal Resolution	Vertical Resolution	Scan Type	Sync Signal Line	Sync Signal Type	Color Space
720	480	P	Y	Bi-level	YPbPr
1920	540	P	Y	Tri-level	YPbPr
720	576	P	Y	Bi-level	YPbPr
1280	720 (720p–50)	P	Y	Tri-level	YPbPr
1280	720 (720p–60)	P	Y	Tri-level	YPbPr
1920	1080 (1080i–50)	I	Y	Tri-level	YPbPr
1920	1080 (1080i–60)	I	Y	Tri-level	YPbPr
1920	1080 (1080p–50)	P	Y	Tri-level	YPbPr
1920	1080 (1080p–60)	P	Y	Tri-level	YPbPr
640	480	P	Y	Tri-level	YPbPr
800	600	P	H-V-	-	RGB
1024	768	P	H+V+	-	RGB
1280	1024	P	H-V-	-	RGB
852	480	P	H-V-	-	RGB
852	576	P	H-V-	-	RGB
1366	168	P	H-V-	-	RGB
1280	168	P	H-V-	-	RGB
1024	1024	P	H-V-	-	RGB
1024	852	P	H-V-	-	RGB
1024	576	P	H-V-	-	RGB
848	600	P	H-V-	-	RGB
1365	1024	P	H-V-	-	RGB
1400	1050	P	H-V-	-	RGB
1400	788	P	H-V-	-	RGB
960	540	P	H-V-	-	RGB
1280	960	P	H-V-	-	RGB
1440	960	P	H-V-	-	RGB
1440	1152	P	H-V-	-	RGB

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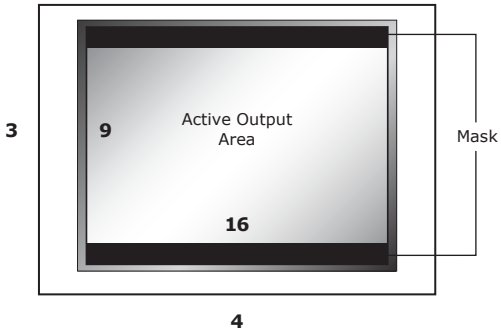
Output Aspect Ratio Control

There are four controls for Output Aspect Ratio (OAR):

- Display Aspect Ratio
- Screen Aspect Ratio
- Image Shift
- Underscan

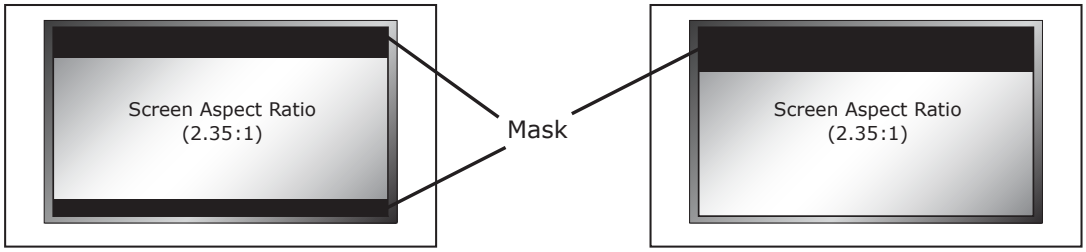
The Display Aspect Ratio is the full aspect ratio of the display, normally specified in the display manual. Common display aspect ratios are 4:3 and 16:9. Less common ones are 5:4, 2.35:1 and others. The example below shows a 4:3 projector with a 16:9 screen.



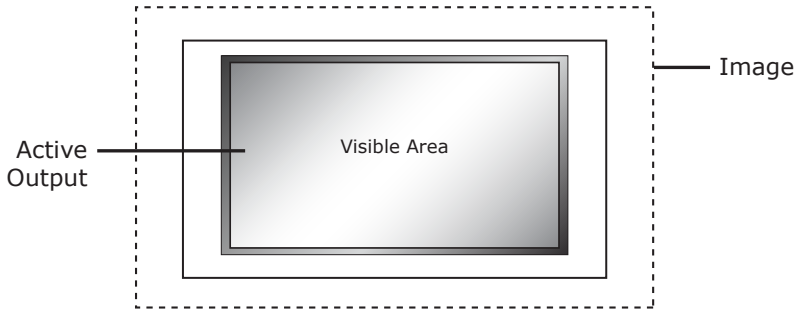
The region outside the Active Output area (called the mask) is inactive, and only important for creating video timing signals for the display. Input video data is never mapped to this region.

When the Display Aspect Ratio is not the same as Active Output Aspect Ratio, the mask is set to blanking levels and always centers the position of the active area over the display area.

Image shift allows you to adjust the location of the image on your screen both horizontally and vertically when the 'Screen' aspect ratio is not equal to the 'Display' aspect ratio. The example below shows 16:9 projector (1.78:1) and a 2.35:1 screen, you can shift the image to match the exact location of your screen. In this situation, the image is shifted down putting all of the mask at the top of the projected image.



Underscan represents the visible display area, a sub-set of the Active Output Area. Underscan is like a negative zoom which preserves the aspect ratio of the active area. The default for this setting is 0. As you increase underscan, the smaller portion of the active display area appears while preserving the aspect ratio of the active display area.



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Sync Type

The Sync Type option sets the synchronization signal type of the output format. Press the Up or **Down** button to show the current sync type. Press the same button again to move to the next synctype.

Currently, the iScan supports seven sync types:

- **Bi-level** bi-level sync on green/luma
- **Tri-level** tri-level sync on green/luma
- **CSync** Composite Sync (on the H sync BNC connector)
- **H+V+** Positive Hsync and Positive Vsync
- **H+V-** Positive Hsync and Negative Vsync
- **H-V+** Negative Hsync and Positive Vsync
- **H-V-** Negative Hsync and Negative Vsync

Color Space

The color space parameter sets the color space of the output format. Press the **Up** or **Down** button to show the current color space. Press the same button again to select the alternate color space. Two analog color space options are supported: YPbPr (default) and RGB. Two digital color space options are supported: RGB (default) and YCbCr (both 4:2:2 and 4:4:4).

Output Level

The output level setting allows the user to specify the levels of the output signal, either Video (16-235) or PC (0-255)

- Video
- PC

Framerate Conversion

This parameter enables framerate conversion. There are two sets of controls, one for 50Hz input sources and one for 60Hz input sources.

For 50Hz sources, if the original source material is progressive at 25Hz (uses 2:2 pulldown), the output framerate can be source locked at either 50Hz or 75Hz. The 75Hz setting repeats each of the original 25Hz frames 3 times. You can also set the output frame rate to a specific value (unlocked mode).

For 60Hz sources, if the original source material is progressive at 24Hz (uses 3:2 pulldown), the output frame can be source locked to either 48Hz, 60Hz or 72Hz. The 48Hz setting repeats each original 24Hz frame 2 times, while the 72Hz setting repeats each frame 3 times. As with 50Hz sources, you can also set the output frame rate to a specific value (unlocked mode).

Press the **Up** or **Down** button once to see the current input rate. Press the same button again to switch input rate.

50 —> 50Hz input sources
60 —> 60Hz input sources

Press the **Enter** button to select the input frame rate and change the output frame rate settings. Select the desired output frame rate setting by using the **Up** or **Down** button.

For 50 Hz input sources, the available settings are:

- **50Hz Lock** source locked 50Hz
- **75Hz Lock** source locked 75Hz
- **Unlock** unlocked

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For 60 Hz input sources, the available settings are:

- **48Hz Lock** source locked 48Hz
- **60Hz Lock** source locked 60Hz
- **72Hz Lock** source locked 72Hz
- **Unlock** unlocked

If you chose **Unlock**, press the **Enter** button again to specify the desired output frame rate. Use the **Up** or **Down** button to increase or decrease the frame rate. Press the **Output Select** button again to exit the menu and complete the output frame rate conversion setting.

Border Level

The border level setting is global, that is, there is only one border level setting for the system. To adjust the border level, push the Up or Down button. The current level is shown. The default value is '0'. Push the Up or Down button to decrease or increase the border level.

HDCP Mode

There are two HDCP modes:

- **Off:** HDCP is disabled at the iScan VP30's HDMI output.
- **On:** The iScan VP30 continuously looks for a HDCP display device on its HDMI output.

Display Profiles

A display profile is a group of display parameters you can save and easily recall in the future. A display profile consists of a set of display parameter selected from the Output Setup menu.

This includes the following:

- Output Type (Analog or Digital)
- Format (Resolution and all video output timing information)
- Output Aspect Ratio
- Sync Type
- Color Space (YPbPr/YCbCr or RGB)
- Output Level (Video or PC)
- Frame Rate Conversion information
- Border Level
- HDCP Mode

You can save up to four display profiles (Profile 1 through 4).

A current custom display profile (called User) is also stored in non-volatile memory. However it will be overridden when you make any modifications to the display profile. You should always save the current display profile to Profile 1 - Profile 4 to prevent the custom profile from being lost.

The **Display Profile** feature is only enabled when you set the User Mode to Advanced, just like the full control of output timing parameters in the Format menu. Table 7. shows the Display Profile OSD and FPD.

Factory default values for the four display profiles and User are as follows:

- Output Type Digital
- Format 480p
- Output Aspect Ratio 16:9

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- Active Output AR 16:9
- Sync Type H-/V-
- Color Space RGB 4:4:4
- Output Level Video
- Frame Rate 50Hz input, unlocked to 59.94, 60Hz input – locked.
- Border Level 20
- HDCP Mode On

Selecting and Saving a Display Profile

Use the following procedure to select and save a display profile:

1. Set up the profile by making changes to the output setup menu items. If you make custom settings (such as output timing parameters), they are saved to User.
2. Save the settings to a profile by selecting Profile 1 through 4 in the Save menu and pressing Enter.
3. Once the Profile is saved, the Save menu is grayed out until you make changes to the profile again.

Auto Linking of Input and Display Profiles

The **Auto** feature links a specific input to a display profile. To enable this feature, use Output Setup] Display Profile] Auto. When you select an input/format, the display profile used (Profile 1 through 4 or User) is saved in the saved input settings. When you turn Auto On, the system uses a display profile based on the selected input.

For example, suppose you choose Display Profile 1 using Video 1 input and Display Profile 2 using S-Video 1 input.

- With **Auto** set to On, when Video 1 is the active input, the system automatically uses Display Profile 1.
- When S-Video 1 is the active input, Display Profile 2 is used.

When **Auto** is Off, the selected display profile is used independently of the active input.

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Non-Volatile Memory Settings

The iScan VP30 stores a variety of user settings in non-volatile memory. Non-volatile memory retains its contents when power is lost. There is one group of system settings and one group of user settings.

System Settings

Table 2. shows System settings.

Table 2. System Settings

Setting	Description
Display Profile	One of four display profiles or User
Auto Display Profile	If enabled, selects a display profile based on input selection
Active Input	One of many VP30 inputs or Auto Active Input
Auto StandBy	Off or On
Video Priority	Priority list of inputs when Auto Active Input is on
User Mode	Normal or Advanced
Border Level	Blank to quarter gray
HDMI Input	Input mode is Automatic or Pass through
Power LED	On, Off or Auto.
Test Pattern Generator	Current selected test pattern
SDI Line Offset	One for 50Hz input and one for 60Hz input
Serial Port Bit Rate	Select an available baud rates.
HDCP Mode	Auto or On

Input/Format Settings

The iScan VP30 supports an independent set of saved settings based on input and format as shown in Table 3.

Table 3. Input/Format Settings

Settings	Input	Format
1	Composite 1	NTSC
2	Composite 2	PAL/SECAM
3	S-Video 1	NTSC
4	S-Video 2	PAL/SECAM
5	Component / RGBS 1	480i (NTSC)
6	Component / RGBS 1	576i (PAL/SECAM)
7	Component / RGBS 1	480p (NTSC)
8	Component / RGBS 1	576p (PAL/SECAM)
9	Component / RGBS 1	720p (ATSC)
10	Component / RGBS 1	1080i (ATSC)
11	Component / RGBS 2	480i (NTSC)
12	Component / RGBS 2	576i (PAL/SECAM)
13	Component / RGBS 2	480p (NTSC)
14	Component / RGBS 2	576p (PAL/SECAM)
15	Component / RGBS 2	720p (ATSC)
16	Component / RGBS 2	1080i (ATSC)
17	RGBHV/Component	480p (NTSC)
18	RGBHV/Component	576p (PAL/SECAM)
19	RGBHV/Component	720p (ATSC)
20	RGBHV/Component	1080i (ATSC)
21	RGBHV/Component	VGA
22	RGBHV/Component	SVGA
23	RGBHV/Component	XGA
24	RGBHV/Component	SXGA
25	SDI	480i (NTSC)

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26	SDI	576i (PAL/SECAM
27	HDMI 1	480i (NTSC)
28	HDMI 1	576i (PAL/SECAM)
29	HDMI 1	480p (NTSC)
30	HDMI 1	576p (PAL/SECAM)
31	HDMI 1	720p (ATSC)
32	HDMI 1	1080i (ATSC)
33	HDMI 1	VGA
34	HDMI 1	SVGA
35	HDMI 1	XGA
36	HDMI 1	SXGA
37	HDMI 2	480i (NTSC)
38	HDMI 2	576i (PAL/SECAM)
39	HDMI 2	480p (NTSC)
40	HDMI 2	576p (PAL/SECAM)
41	HDMI 2	720p (ATSC)
42	HDMI 2	1080i (ATSC)
43	HDMI 2	VGA
44	HDMI 2	SVGA
45	HDMI 2	XGA
46	HDMI 2	SXGA
47	HDMI 3	480i (NTSC)
48	HDMI 3	576i (PAL/SECAM)
49	HDMI 3	480p (NTSC)
50	HDMI 3	576p (PAL/SECAM)
51	HDMI 3	720p (ATSC)
52	HDMI 3	1080i (ATSC)
53	HDMI 3	VGA
54	HDMI 3	SVGA
55	HDMI 3	XGA
56	HDMI 3	SXGA
57	HDMI 4	480i (NTSC)
58	HDMI 4	576i (PAL/SECAM)
59	HDMI 4	480p (NTSC)
60	HDMI 4	576p (PAL/SECAM)
61	HDMI 4	720p (ATSC)
62	HDMI 4	1080i (ATSC)
63	HDMI 4	VGA
64	HDMI 4	SVGA
65	HDMI 4	XGA
66	HDMI 4	SXGA

There is a separate set of settings not just for each input but for each format as well. This provides a lot of flexibility but is complex. For example, you can make settings for an input with an NTSC source, but when the source is changed to PAL, you must specify new settings.

Each input/format settings contains the information shown in Table 10.

Table 4. Format Settings

Setting		Description
Picture Control		
	Brightness	
	Contrast	
	Saturation	
	Hue	
	Sharpness	
	Chroma Error Correction	
	Y/C Delay	
Display Profile		Profile 1 - 4 or User
Audio Select		Audio 1 - 4
Audio Delay		
Overscan		
VCR Mode		
Film Mode		
Input AR Preset		Preset 1 - 4 or User Preset Note 1

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User Preset	Frame AR	
	Active Input AR	Pre-defined or User AR
	User AR	
	Hor. Zoom	Hor. Zoom
	Vert. Zoom	Vert. Zoom
	Hor. Pan	Hor. Pan
	Vert. Pan	Vert. Pan
	Hor. Borders	Hor. Borders
	Vert. Borders	Vert. Borders

There is only one set of presets (Preset 1 through Preset 4) for the whole system. However the User Preset is per input and per format.

Setting up an iScan VP30 Using the Internal Test Patterns and Avia: Guide to Home Theater Calibration DVD

The iScan VP30 has 27 built-in test patterns to assist in the setup of your display and your individual sources. ABT recommends that you use the Avia: Guide to Home Theater DVD to assist in this setup. This DVD can be purchased directly from DVDO at http://www.dvdo.com/companion/avia.php.

Determining the Correct Output Resolution for Your Display:

Determine the optimum output resolution to set your iScan VP30 to get the best picture from your display. To do this correctly, you must know what the native resolution or maximum resolution of your display. Native resolution refers to the actual pixel count of a fixed pixel display. Fixed pixel display technologies include plasma, LCD, DLP and LCoS. CRT-based technologies use scan lines so they do not have a native resolution but they do have a maximum resolution.

Keep in mind that some displays do not accept their native resolution. The following is an example of specifications from an LCD TV:

Diagonal Screen Size (inches) 32
Display Capability 480p/720p/1080i
Aspect Ratio 16:9 (Widescreen)
Resolution (Number of Pixels) 1280 x 768 (1,049,088 pixels)

The native resolution of this display is 1280x768, which an iScan VP30 can output, but this display is only capable of accepting 480p, 720p, or 1080i signals. For this display, the best output resolution to choose on the iScan VP30 is 720p, since it is the closest to the native resolution of this display.

An example of the specifications from a CRT-based rear projection display is shown below:

Diagonal Screen Size (inches): 53
Aspect Ratio: 16:9 (Widescreen)
CRT Type: 7” Diagonal
HDTV Compatibility: 540p/1080i

This display only displays two resolutions, both of which the iScan VP30 can output. To find out which one looks best on your display use familiar material, like a favorite DVD, to compare to find out which resolution is more to your liking on your display.

A small amount of displays’ documented native resolutions are incorrect. According to the information on Fujitsu’s web site, the native resolution of the Fujitsu 50” plasma (Model P50XHA10US) is 1366x768.

50” diagonal screen size
AVM Digital Video Processor
1366 x 768 native resolution
3000:1 contrast ratio
3.9” thin and 99 pounds

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Even though the specifications indicate that this 50” plasma has a native resolution of 1366x768, ABT has found that most plasmas with this stated resolution actually have a 1360x768 native resolution. Most other displays do specify the correct native resolution; this display is an exception.

Below are several different popular display technologies and their most likely native resolutions.

Plasma
42-43” – 852x480, 1024x768, 1024x1024 (ALiS)

50-63” – 1280x768, 1360x768, 1365x768, 1366x768

DLP
Rear Projection – 1280x720 (720p), 1920x1080 (1080p)

Front Projection – 852x480, 848x600, 1024x768, 1280x720 (720p)

LCD
Rear Projection – 1280x720 (720p), 1366x768

Front Projection – 1024x768, 1280x720 (720p), 1366x768

Direct View – 1024x768, 1280x720 (720p), 1366x768, 1920x1080 (1080p)

LCoS
Rear Projection – 1280x720 (720p), 1366x768, 1920x1080 (1080p)

Front Projection – 1024x768, 1280x720 (720p), 1366x768, 1920x1080 (1080p)

CRT
Rear Projection – 480p, 540p, 1080i

Front Projection – 1280x720 (720p), 1280x960, 1440x960, 1440x1152, 1920x1080 (1080p)

Initial Setup of the iScan to Your Display:

Test Patterns used: Frame Geometry
Checker board
Vertical Lines
Horizontal Lines
Judder

The following information uses a Fujitsu 50” plasma (Model P50XHA10US) as an example. As stated above, this display has an actual native resolution of 1360x768.

1 - Select the preset which is closest to the output resolution that you need. In this situation, the closest preset is 1366x768.

Output Setup ⇨ Format ⇨ 1366x768

2 - Display the ‘Frame/Geometry’ test pattern to verify that the image is positioned correctly on your display.

Configuration ⇨ Test Patterns ⇨ Frame Geometry

NOTE: To turn the test patterns on and off, use the Test Patterns button on your remote control. You can also navigate backwards and forwards through the test patterns, using the < and > buttons respectively.

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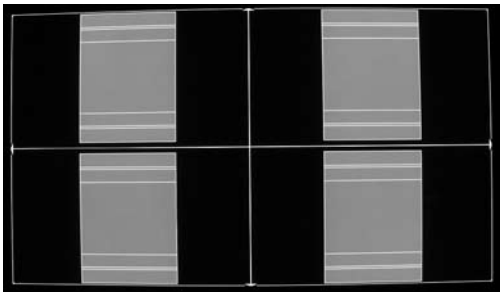
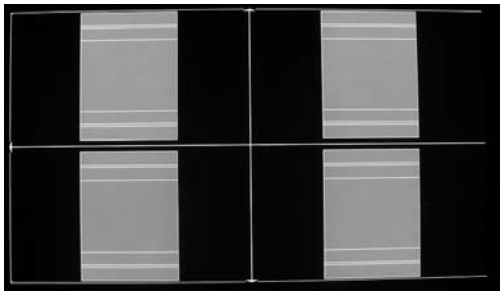


Frame/Geometry Test Pattern Displayed Correctly (Image B)

When this test pattern is displayed correctly, it should look like this, with a one-pixel wide white border around the edge of the screen:



Frame/Geometry Test Pattern (Image C)

As shown in image C, the test pattern is almost displayed correctly. You can see the 1-pixel wide white border on the top, bottom and left side of the image but not on the right side of the image. By adjusting the horizontal size of this signal to 1360 (rather than 1366), you can get this test pattern displayed correctly on the display.

To change the horizontal size of the image, you must first put the iScan in 'Advanced' user mode.

Configuration ⇨ User Mode ⇨ **Advanced**

Output Setup ⇨ Format ⇨ H-Size ⇨ **1360**

In some cases, the output format is correct, but the image just needs to be shifted to fill the screen correctly. Do this by using the Horizontal and Vertical Shift options in the 'Output Setup' menu.

Output Setup ⇨ Format ⇨ 1366x768 ⇨ H-Shift ⇨ Range

Output Setup ⇨ Format ⇨ 1366x768 ⇨ V-Shift ⇨ Range

NOTE: Any adjustments made to the output format change your selected output from the resolution you selected to 'User'. This allows you to adjust the output without affecting the default settings.

There are three test patterns used to verify that the chosen output resolution is the native resolution of your display and that you are bypassing any internal processing in your display. They are the checkerboard, vertical lines and horizontal lines test patterns.

When the checkerboard test pattern is displayed correctly, close up you should be able to see a 1-pixel checkerboard and at proper viewing distance the image should appear as an even gray. If your display is CRT-based you will not see this checkerboard, but your screen should be an even gray.

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When this test pattern is displayed incorrectly, the resulting image does not look like a fine checker-board and may have irregular patterns. When this is the case, the chosen output resolution may not be the native resolution of your display or your display may scale all input signals even if the input resolution is already at native resolution. Check to make sure that the output resolution selected on the iScan is the correct output resolution for your display.

> **NOTE:** If this test pattern does not appear as it should, and you have chosen the native resolution of your display, you may not be able to bypass the internal processing on your display.

The 'Vertical Lines' test pattern should appear as one pixel wide black and white columns. If you see any irregular pattern(s) in the image, you know that the display is scaling the signal horizontally. To override the internal scaling, adjust the horizontal size of the image to see if the test pattern can be displayed correctly.

Output Setup ⇨ Format ⇨ User ⇨ H-Size ⇨ Adjust

The 'Horizontal Lines' test pattern should appear as one pixel tall black and white rows. If you see any irregular pattern(s) in the image then you know that the display is scaling the signal vertically. To override the internal scaling, adjust the vertical size of the image to see if the test pattern can be displayed correctly.

Output Setup ⇨ Format ⇨ User ⇨ V-Size ⇨ Adjust

The 'Judder' test pattern displays a bar that bounces back and forth at the chosen output frequency selected in the 'framerate' parameter. When this test pattern is displayed correctly, the bar moves smoothly across the screen and bounces from side to side. When this pattern is displayed incorrectly, this bar may 'tear' as it moves across the screen. To adjust the framerate conversion, go to the 'Output Setup' menu.

For displays that will only display 50Hz (PAL)

Output Setup ⇨ Framerate ⇨ 50Hz ⇨ 50Hz Lock

Output Setup ⇨ Framerate ⇨ 60Hz ⇨ Unlock ⇨ 49.95

For displays that will only display 60Hz (NTSC)

Output Setup ⇨ Framerate ⇨ 50Hz ⇨ Unlock ⇨ 59.94

Output Setup ⇨ Framerate ⇨ 60Hz ⇨ 60Hz Lock

Display Calibration

Test Patterns Used:
- Brightness/Contrast
- Color8 Bars75
- Color8 Bars100
- Gray Ramp

The iScan VP30 has several test patterns to assist in the setup of your display. Adjustments should be made on your display, not on the iScan, to correctly setup your iScan and display.

The 'Brightness/Contrast' test pattern will assist you in setting up both the brightness (black level) and contrast (white level) of your display. The 'Brightness/Contrast' test pattern is composed of 4 quarter-screen blocks. Two of the blocks have a background level of standard black and the other two blocks have a background level of standard white. Embedded in the black blocks are 3 bars.

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One is 4 IRE below black (blacker-than-black), one is 1 IRE above black, and the third is 2 IRE above black. Embedded in the white blocks are 3 bars. One is 1 IRE above white (whiter-then-white), one is 1 IRE below white, and the third is 2 IRE below white. The bottom two blocks differ slightly from these levels. For the bottom two blocks, the blacker-than-black is at the lowest possible luma level and the whiter-than-white bar is at the highest possible luma level. When the brightness and contrast are adjusted correctly, you should be able to see the 1 IRE and 2 IRE above black bars on the black background and the 1 IRE and 2 IRE below white bars should be visible on the white background. When the brightness is adjusted correctly, black objects should appear 'black' with the details still intact and lighter areas should be 'light', not gray, with the details still intact. When the contrast is adjusted correctly, white objects will appear 'white' with the details still intact. Because the contrast settings can affect brightness settings we recommend that you check the brightness setting after making this adjustment.

> **NOTE:** If you have a CRT based display, following the instructions above may yield a contrast setting too high. If the contrast is set too high, you will get blooming and loss of details in the highlighted areas. It is more helpful to use the two vertical lines in the test pattern. Adjust the contrast up and down and you will notice that these lines will bend as you increase the contrast. To properly adjust contrast on a CRT based display, decrease the contrast until the vertical lines start to straighten out. If possible, the two lines should be straight. On some CRT, the lines may not straighten even if you turn the contrast to its minimum. If this is the case, slowly increase the contrast to a point just before the vertical lines have extreme bending. You have now properly set up the contrast of your display. Continue to set up brightness as detailed above.

The 'Color8 Bars75' and 'Color8 Bars100' will assist in setting up the saturation (color) and hue (tint) of your display. The 'Color8 Bars75' test pattern consists of 8 vertical bars across the screen at a 75% saturation level. The 'Color8 Bars100' test pattern consists of 8 vertical bars across the screen at a 100% saturation level. From left to right the bars are: white, yellow, cyan, green, magenta, red, blue, and black. To properly adjust the saturation and hue you will need to use the blue colored filter that comes with AVIA. You will also need to turn off any automatic flesh tone controls on your display before making these adjustments. When the Saturation and Hue are adjusted correctly, the white bar and the blue bar should be exactly the same shade when looking through the blue filter. Saturation and hue settings interact with each other so after making this setting you may want to go back and check that the saturation setting is correct.

The 'Gray Ramp' can help verify that your display is showing the gradients between black and white correctly. You should see a smooth transition between black and white with this test pattern.

Special Equipment Needed for Display Calibration

To get the most accurate picture on your display, you may want to have an ISF-certified technician calibrate your display (www.imagingscience.com). To assist in this calibration, the iScan includes IRE windows to be used with the proper calibration equipment.

Test Patterns Used:	Window IRE10
	Window IRE20
	Window IRE30
	Window IRE40
	Window IRE50
	Window IRE60
	Window IRE70
	Window IRE80
	Window IRE90
	Window IRE100

IRE stands for International Radio Engineers and it is a relative scale, NOT an absolute. It defines the volt peak to peak video divided up into 140 IRE units. This is done to make numbers for luminance levels easier to communicate. In the ISF Training Manual, it is described as the amplitude of the video signal from blanking (zero volts) to peak white is 0.714286 volts or 100 IRE units. Synchronization signals extend from blanking to -0.285714 volts or -40 IRE units.

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CRT Display Calibration

To get the best picture from your CRT-based display make sure that the red, blue and green signals are converged properly. To assist in converging these three signals ABT has included two test patterns. In addition to convergence, make sure that the focus is optimally adjusted. ABT has included one test pattern designed specifically for this application. On some displays, these settings may not be available unless you get into the service menu. ABT recommends that you hire an ISF-certified technician to make these adjustments if you do not feel comfortable getting into the service menu.

Test Patterns Used: XHatch Coarse
XHatch Fine
Focus

Source Calibration

Test Patterns Used: Half Black/White
H-Clr7 Bars75
H-Clr7 Bars100
H-Clr8 Bars75
H-Clt8 Bars100

To get the best performance out of each of your sources you should individually calibrate each input specifically to the connected source. In this section, all picture control adjustments are made using the iScan's picture controls. Keep in mind that if you replace a source with a new component you will also want to recalibrate the input. To calibrate each source correctly you will need the source to output a reference test pattern similar to what is built in to the iScan. For sources like DVD, LD and D-VHS, this content is readily available. But for a source like HD satellite or cable, these test patterns are played on channels like HDNet at off hours. So if you have a DVR ABT recommends that you record these test patterns.

AVIA will assist in setting up the input to which your DVD player is connected. ABT recommends that you use a digital connection, DVI, HDMI or SDI, or a high quality analog connection, component video. Don't use S-Video or Composite video for a higher quality source like DVD. Before calibrating the input for your DVD player, make sure that your DVD player is set to '16:9' output, not '4:3'. You will also want to turn off any extraneous features like noise reduction which may add more noise than help. Set all picture settings on the DVD player to either 'Off', 'default', or '0'.

Use the test patterns included on the AVIA DVD to adjust the picture controls on this input. If you are not familiar with how to make these adjustments, watch the guided setup first, and then make each adjustment. You can find the guided setup by clicking 'Advanced AVIA' from the main menu, and then selecting 'Basic Video Adjustments' on the following menu page. Each picture control is explained in depth and the narrative will tell you what to look for in a properly adjusted display.

Once you have made these adjustments, there are several patterns on the AVIA DVD that can be used in conjunction with the built-in test patterns of the iScan to verify the settings are correct. Access these as follows:

1. After inserting the AVIA DVD into your DVD player, press the 'top menu' button to bring up the main menu.
2. From the main menu, select 'Advanced AVIA'.
3. On the right hand side of the 'Calibrations' menu page select 'Video Test Patterns'.
4. From the 'Video Test Patterns' menu, select 'Gray Scale & Levels'.
5. From the 'Black and White Levels' menu, select the 'Needle Pulses' test pattern. This is to be used with the 'Half B/W' internal test pattern from the iScan.
6. Once you have adjusted brightness and contrast, go back to the 'Video Test Patterns' menu and select 'Color Adjustment'.
7. From the 'Color Adjustment' menu, select 'Special Color Bars'.

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Use the 'Full Bars' test pattern in conjunction with the 'H-Clr7 Bars75' internal test pattern from the iScan.

Use the 'Full 100 Bars' with the 'H-Clr7 Bars100' internal test pattern.

Record Your Settings

Once you have set up your iScan, ABT recommends that you record your settings on the installation work-sheet which can be reprinted from the DVDO website at http://www.dvdo.com/faq/faq_pro_man.php.

Troubleshooting

1. Problem: My iScan VP30 shows an error message.

If the iScan VP30 does not boot correctly, you may get an error message. Performing a hard reset of the iScan VP30 should clear any memory errors and reboot the unit to its factory default (480p digital RGB 4:4:4 output). If you still get an error message after performing a hard reset, contact our Technical Support department for service.

- Perform a hard reset of the iScan VP30 unit using the remote control as follows:
    1- Press the Configuration button on the remote until the Front Panel Display (FPD) reads 'Configuration / Factory Default'
    2- Press Enter. The FPD indicates 'No'
    3- Press the up arrow. The FPD indicates 'Yes'
    4- Press Enter. The iScan VP30 reboots to its factory default

- Perform a hard reset of the iScan VP30 unit using the remote control as follows:
    1- Press the Configuration button on the remote until the front LED reads 'FCTD'
    2- Press Enter. The FPD indicates 'NO'
    3- Press the up arrow. The FPD indicates 'YES'
    4- Press Enter. The iScan VP30 reboots to its factory default

- Perform a hard reset of the iScan VP30 unit using the buttons on the front panel as follows:
    1- Unplug the power supply from the iScan VP30 unit
    2- Press Menu and Exit buttons simultaneously while plugging the power back in.

2. Problem: The picture is green when I use the analog output of the iScan VP30.

A green picture usually means that a component video signal is being sent to the RGBHV input of a display. Follow the instructions earlier in the user guide to set up your iScan VP30 to work with a display with RGBHV inputs

3. Problem: A blue screen appears when I connect the iScan to the DVI or HDMI input of my display.

The default output from the iScan VP30 is digital RGB 4:4:4 (DVI Standard). Make sure that the display that you are connected to is HDCP compliant.

4. Problem: The Blue status LED blinks on the front panel of the iScan VP30.

A blinking blue light on the iScan VP30 means that the iScan is processing an HDCP-protected signal, but is unable to authenticate with the display. Verify that your display is HDCP compliant. If it is not HDCP compliant, use component connections. If the display is compliant, then verify that the 'HDCP mode' is set to 'On' in the 'Input Adjust' and 'Output Setup' menus. If the problem persists, check the cabling and try new cables, if possible or try cycling the power on your display or HDCP source.

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5. Problem: The Green status LED blinks on the front panel of the iScan VP30.

The LED on the iScan VP30 blinks green when it is passing a copy protected signal to a non-HDCP display. If your display is not HDCP compliant, then the image won't be displayed. Use component connections from your source to your iScan VP30 instead.

6. Problem: Will I lose the settings on my iScan VP30 if I update the software version?

Currently, the iScan VP30 may lose its settings when a software update is performed.

Take note of your output settings before updating the software version on your unit

Complete Menu Tree

Input Select			
	Video 1		
	Video 1		
	S-Video 1		
	S-Video 2		
	Component 1		
	Component 2		
	RGBHV/Component		
	HDMI 1		
	HDMI 2		
	HDMI 3		
	HDMI 4		
	SDI		
	Auto		
Input Aspect Ratio			
	Frame AR		
		4:3	
		16:9	
	Active AR		
		1.33:1	
		1.55:1	
		1.66:1	
		1.78:1	
		1.85:1	
		2.35:1	
		User	
	Zoom		
		Horizontal	
			Range: 0-100
		Vertical	
			Range: 0-100
	Pan		
		Horizontal	
			Range: 0-100
		Vertical	
			Range: 0-100
	Borders		
		Horizontal	
			Range: 0-200
		Vertical	
			Range: 0-200
	Presets		
		4:3 Full Frame	
		Letterbox	
		16:9 Full Frame	
		Preset 1	
		Preset 2	
		Preset 3	

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		Preset 4	
		User	
	Save User to		
		Preset 1	
			No
			Yes
		Preset 2	
			No
			Yes
		Preset 3	
			No
			Yes
		Preset 4	
			No
			Yes
Input Adjust			
	Overscan		
		Range: 0-20	
	Line Offset		
		Range: 0-30	
	Color Space		
		RGB	
		YPbPr	
		YCbCr 4:2:2	
		YCbCr 4:4:4	
		Auto	
	Input Level		
		Video	
		PC	
	VCR Mode		
		Off	
		On	
		Auto	
	Film Mode		
		Off	
		Film Bias	
		Auto	
	HDCP Mode		
		Off	
		On	
	Auto Priority		
		Range: 1-12/Off	
	Audio Input		
		Off	
		Audio 1	
		Audio 2	
		Audio 3	
		Audio 4	
		Stereo	
		HDMI	
	AV Lipsync		
		Range: 0-200	
Picture Control			
	Brightness		
		Range: -50-50	
	Contrast		
		Range: -50-50	
	Saturation		
		Range: -50-50	
	Hue		
		Range: -50-50	
	Sharpness		
		Range: 0-7	
	Y/C Delay		
		Range: -50-50	

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	CUE Correction		
		Off	
		On	
		Auto	
Configuration			
	Test Patterns		
		Frame/Geometry	
		Checkerboard	
		Vertical Lines	
		Horizontal Lines	
		Judder	
		Brightness/Contrast	
		Color8 Bars75	
		Color8 Bars100	
		Gray Ramp	
		Window IRE10	
		Window IRE20	
		Window IRE30	
		Window IRE40	
		Window IRE50	
		Window IRE60	
		Window IRE70	
		Window IRE80	
		Window IRE90	
		Window IRE100	
		Xhatch Coarse	
		Xhatch Fine	
		Focus	
		H-Clr7 Bars75	
		H-Clr7 Bars100	
		H-Clr8 Bars75	
		H-Clr8 Bars100	
	Auto Standby		
		Active	
			Range: 0-3
		Reduced	
			Range: 0-3
	User Mode		
		Normal	
		Advanced	
	Serial Port Rate		
		4800	
		9600	
		14400	
		19200	
		38400	
		57600	
	Factory Default		
		No	
		Yes	
	Software Update		
		No	
		Yes	
	Information		
Output Setup			
	Analog/Digital		
		BNC (Analog)	
		HDMI (Digital)	
	Format		
		480p	
		540p	
		576p	
		720p-50	
		720p-60	
		1080i-50	

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	1080i-60		
	1080p-50		
	1080p-60		
	640x480 (VGA)		
	800x600 (SVGA)		
	1024x768 (XGA)		
	1280x1024 (SXGA)		
	852x480		
	852x576		
	1366x768		
	1280x768		
	1024x1024		
	1024x852		
	1024x576		
	848x600		
	1365x1024		
	1400x1050		
	1400x788		
	960x540		
	1280x960		
	1440x960		
	1440x1152		
	User		
		Horizontal Shift	
			Range:
		Horizontal Size	
			Range:
		Horizontal Front Porch	
			Range:
		Horizontal Sync	
			Range:
		Horizontal Back Porch	
			Range:
		Horizontal Total	
			Range:
		Vertical Shift	
			Range:
		Vertical Size	
			Range:
		Vertical Front Porch	
			Range:
		Vertical Sync	
			Range:
		Vertical Back Porch	
			Range:
		Vertical Total	
			Range:
Aspect Ratio			
	Display		
		4:3	
		5:4	
		16:9	
		2.35:1	
		User	
			Range: 1.00-3.00
	Screen		
		4:3	
		16:9	
		2.35:1	
		User	
			Range: 1.00-3.00
	Image Shift		
		Vertical	
			Range: -30-30
		Horizontal	

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			Range: -30-30
	Underscan		
		Range: 0-100	
Sync Type			
	Bi-Level		
	Tri-Level		
	Composite		
	H+/V+		
	H+/V-		
	H-/V+		
	H-/V-		
Color Space			
	RGB		
	YPbPr		
	YCbCr 4:2:2		
	YCbCr 4:4:4		
Output Level			
	Video		
	PC		
Framerate			
	50Hz		
		50Hz Lock	
		75Hz Lock	
		Unlock	
			Range: 25-120
	60Hz		
		48Hz Lock	
		60Hz Lock	
		72Hz Lock	
		Unlock	
			Range: 24-120
Border Level			
	Range: 0-100		
HDCP Mode			
	Off		
	On		
Display Profile			
	Select		
		Profile 1	
		Profile 2	
		Profile 3	
		Profile 4	
	Save		
		Profile 1	
			No
			Yes
		Profile 2	
			No
			Yes
		Profile 3	
			No
			Yes
		Profile 4	
			No
			Yes
	Auto		
		Off	
		On	

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